DEPARTMENT OF NATURAL RESOURCES

PRELIMINARY PLAT CHECK SHEET

A preliminary plat that is sent to the Water Management Division for a flood plain determination should contain all the requirements under Section 111 of the Subdivision Control Act along with hydraulic or hyrdologic information for the actual flood plain computations.

Section 111 requires that the preliminary plat:

1. Be prepared on a topographical map.

2. Show the plat name.

3. Show the plat location - site map.

4. Show the proposed division of land.

5. Show the name and address of the proprietor.

6. Show the name, address and seal of the surveyor or engineer.

If a floodplain has not been established by the Department of Natural Resources the following hydraulic or hydrologic information supplementing the preliminary plat may be required, and varies with the type of flood plain that is being determined. In general it should include:

1. Water surface elevation and date taken.

2. Recorded or observed high water.

3. Drainage area if possible (very important on small lakes and ponds).

4. Engineering sketch of a control structure or dam.

5. Cross-sections on the stream in accordance with handout entitled "Cross-Sections" (available upon request).

6. Road profiles at stream crossings.

7. Elevations of high water outlets or auxilary outlets.

8. Type of datum. Must be USGS on streams. A benchmark should be shown and described if other than USGS datum is used.

Department of Natural Resources' Jurisdiction

The purpose of plat review by the Water Management Division, Department of Natural Resources is to check for potential damage to or encroachment of public waters on all water front plats. It is necessary for riparians and/or their agents to seek the required Department permits prior to any filling, dredging or other project which affects the adjacent waters and the contour of the shoreline. These permits are required under State Statutes administered by the Land Resource Programs Division but will be coordinated on plats by the Water Management Division.

Application for these permits should be filed at the time of submittal of the preliminary plat to prevent any unnecessary delay in securing Department approvals for platting. Application forms can be obtained from any Department of Natural Resources; field office or by writing the Water Management Division, P.O. Box 30028, Lansing, Michigan 48909.

Plats which encompass small creeks, waterways and open drains must be contained in the proprietor's certificate with the following language: "Lots embracing any waters of said lake or stream are subject to the correlative rights of other riparian owners and to the public trust in these waters". All other plats should extend the lot or plat boundaries to the water's edge and add to the proprietor's certificate: "All water front lots extend to the water's edge". This will prevent any misunderstanding concerning the use, control and ownership of lands which become temporarily exposed because of low water conditions.

Review of plats by the Water Management Division, Department of Natural Resources ensures that any lot of a plat which lies wholly or in part within the flood plain of a river, stream, drain, creek or lake will have an adequate building site and access in times of extreme high water. It further requires the filing of restrictive deed covenants to ensure that any building for residential purposes will be built in such a manner that it will not be damaged due to the effects of the high water levels in the flood plain area.

Following is a copy of the Water Management Division's "Preliminary Plat Check Sheet" to be used in the preparation of plats with flood plain involvement. Questions concerning this Section should be addressed to the Water Management Division, P.O. Box 30028, Lansing, Michigan 48909.

GUIDELINES

For The Subdivision of Land

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MICHIGAN DEPARTMENT OF PUBLIC HEALTH

INTENT

The following criteria are intended to assist the developer, his engineer or surveyor, and state agencies in the review of preliminary plats by clarifying existing rule interpretations and factors to consider while evaluating a specific site for development. Further, authorized local health departments carry out certain provisions of the Michigan Department of Public Health requirements, and it is intended these criteria will enhance uniform interpretation throughout the state.

APPLICABILITY

GUIDELINE as defined in Act 306, P.A. 1969, as last amended by Act 108, P.A. of 1977, means "An agency statement or declaration of policy which the agency intends to follow, which does not have the force or effect of law, and which binds the agency but does not bind any other person". It is intended that "agency" as used above also includes local health departments when acting as an agent of the Michigan Department of Public Health.

SITE REPORT

A minimum of three copies of the site report and plat map must be submitted to the local health department. A fourth copy for the files of the Land Subdivision and Planning Section is also necessary and should be requested from the developer. A site report form as required by the rules promulgated under the authority of Act 288, P.A. 1967, as amended, has been developed to assist proprietors and their engineers or surveyors in submitting the information needed for processing a preliminary plat.

The site report may be duplicated by the proprietor or he may secure sufficient copies of the form from the health department to serve his needs. While the site report form is fairly complete, a number of details must be provided on the plat; however, there is no need for duplication in the site report of data included in the drawing.

AVAILABILITY OF WATER AND SEWERS

The submission of plats to the health department for review purposes under the authority of Act 288, P.A. 1967, as amended, is based entirely on the proposed use of private on-site water supply and/or sewage disposal systems (defined as a pretreatment device followed by a subsurface soil absorption system). Where public utilities are determined to be available and accessible, proposed subdivisions must be connected to them. In determining availability and accessibility of such public services, the following must be given consideration:

1. Distance from the proposed subdivision to nearest existing public services or planned public services that are to be installed.

2. Capacity of the existing public system.

3. Policy of local governing body on utility extensions.

4. Population density of the proposed subdivision and of the surrounding area to determine need for public service.

5. The service areas denoted in the community's comprehensive sewer and water plan, if one is available.

If an individual project, or group of projects, in an area creates development potential of a magnitude that may cause a future health hazard and public facilities are not available, the matter is to be discussed with a representative of the Land Subdivision and Planning Section. A feasibility study on providing public water and/or sewerage systems, to be prepared by the proprietor's consultants, may be necessary prior to any plat approvals. If public water and/or sewerage systems are planned for the area, provisions to have the proposed subdivision fit into the community's development plan are to be made to insure that orderly development is achieved. Where the interim use of on-site systems is proposed, soils and water supply provisions must be suitable and restrictive covenants must advise lot purchasers that participation in a special assessment district may be necessary in the future.

SLOPES

As a reference, those lots with slopes of between 6 to 12% provide moderate limitations for development, while 12 to 25% slopes provide severe limitations for development, and care should be taken to assure that such lots have sufficient areas of reasonably level ground for both the initial and replacement sewage disposal system installations with primary concern for the subsurface soil absorption system. When the subdivision contains lots with 12 to 25% slopes, a plot plan for affected lots with contour elevations every two feet showing a design for a sewage disposal system, replacement area, well location, etc., prepared by the surveyor or engineer with consultation from the sanitarian representing the local health department.

Where extensive site modifications are proposed, all site work in the area of the proposed drainfields may be required to be completed prior to final plat approvals of the governing body. On all plats, surface water drainage is to be considered, both before and after grading, so that a sewage disposal system is not proposed to be placed in a drainageway.

SOILS

One of the very important aspects of the subdivision approval program is soil classification and analysis. For many years, decisions on soil suitability have been made on the results of stabilized percolation tests (percolation is defined as the rate at which liquid will pass through soil). Experience has shown that the use of percolation test results alone is inadequate for determining soil suitability due to variations in conducting the test and difficulty in duplicating the results.

Soil investigations to a minimum depth of six feet to verify the presence of permeable soils and the absence of a seasonal high water table condition to this depth provide the most reliable information when attempting to determine soil suitability. Such investigations are reproducible and enable the consultants to confirm the presence of suitable soils that would allow development to proceed without site modifications, or provide the basis for considering site modification proposals. Backhoe cuts or deeper soil borings may be required to provide additional information concerning soil properties where unique or varying soil conditions are encountered to assist in locating impervious strata and high groundwater table elevations. Where soils of rapid percolation rate extending to the potable water aquifer are encountered, special consideration for protection of that aquifer is necessary (i.e., increased horizontal isolation distances, greater well depths, larger lot sizes, etc.) and these situations must be brought to the attention of the Land Subdivision and Planning Section prior to preliminary plat approval.

The following soils information is required to be provided and recorded on the site report or the preliminary plat map:

1. Soil boring information in the area of the proposed sewage disposal system. Normally, borings are necessary on the basis of at least one per acre or one per lot if lots are less than one acre in size; or sufficient borings are to be provided to conclude that a suitable building site and area for a sewage disposal system exists on each lot. The data submitted on these borings must record all soil changes to a depth of at least six feet below the parent ground surface. The depth of groundwater and any mottling present must also be noted and reported along with a description of soil texture, drainage, structure, etc. Soil reports must classify the soils utilizing USDA soil classification to minimize confusion in soils interpretation. In areas where soils vary, sufficient borings shall be taken to clearly demonstrate the presence of suitable soils over an area sufficient for the initial and replacement sewage disposal systems. Hand auger borings may be difficult to make and may result in soil mixing so that impervious layers and mottling may not be distinguishable. Consequently, backhoe excavations conducted in the presence of the sanitarian and, in some instances, a representative of the Land Subdivision and Planning Section, must be requested when questions concerning soil suitability are posed.

2. If stabilized percolation tests are conducted, the location of these tests must take into consideration any varying soil conditions and the probable location of the sewage disposal system. (For information regarding stabilized percolation test procedures, consult with personnel from the Land Subdivision and Planning Section.)

3. If stabilized percolation tests are conducted or soil evaluation procedures are performed by the engineer or surveyor, the test locations must be temporarily marked so that the sanitarian can easily find them during a field investigation. Whenever possible the proprietor, his surveyor, or the engineer should make arrangements with the local sanitarian to conduct a joint site evaluation.

LOT SIZES

Section 186 of Act 288, P.A. of 1967, as amended, establishes the minimum lot size for residential subdivisions not connected to a public water and public sewer system as 12,000 square feet. Residential lots may be smaller than 12,000 square feet where both public water and sewer are already provided, or where the proprietor has posted adequate surety with the municipality, and if the municipality has also adopted local zoning and subdivision control ordinances, as provided by Section 186(d) which include width and area provisions for residential building lots.

Where public sanitary sewer and water will not be available, under parameters set forth in the section "Availability of Water and Sewers", lots larger than 12,000 square feet are necessary to provide for the long-term use of on-site water and sewage disposal systems.

In determining the adequacy of the lot area provided with reference to residential on-site sewage disposal systems, the following criteria must be given consideration:

1. Provide a minimum of 50 feet of isolation from an individual well.

2. Provide a minimum of 100 feet of isolation from any surface water. Soil and/or local geological conditions may warrant a reduction in this distance if sufficient information is provided indicating that a public health problem or environmental damage will not be created from the proposed development. In no instance may this distance be reduced to less than 50 feet, and discussion with representatives of the Land Subdivision and Planning Section are to be held prior to approving any reduction in this horizontal isolation distance.

3. Provide a minimum of 10 feet of isolation from any foundation wall (25 feet where footing drains installed into the water table are provided) and 20 feet from the top of any embankment.

4. Provide a minimum of 10 feet of isolation from property lines.

5. The lot area for single-family dwellings is to contain sufficient land to provide the needed isolation as prescribed by the foregoing items plus space to permit the installation of the dwelling, garage and driveway, patio, and the original and at least one replacement sub-surface soil absorption system. The area requirements shall be based on established soil permeability and other soils information with minimum area requirements as set forth in the following table for three-bedroom homes (for each additional bedroom over three, add 30% to the areas required for sewage disposal systems):

Soil Texture	Permeability In/Hr	Permeability Min/In	Suitable Land Area on Each Lot Set Aside and Available for Sewage Disposal Systems (trenches)
Sand, loamy sand	4-60	1-15	2,600 - 3,400 sq. ft.
Sandy loam	2-4	16-30	3,400 - 5,700 sq. ft.
Sandy clay loam, light loam	1.3-2	31-45	5,700 - 10,0000 sq. ft.
Clay loam, silty clay loam, clay	Less than 1.3	46 or above	UNSUITABLE

Plats to be used for commercial, multi-unit residential, or industrial purposes will normally require the provision of public water and/or sewer systems. Under select circumstances, approval of this type of development with on-site water and sewage disposal systems will be considered. Local health departments are encouraged to contact a representative of the Land Subdivision and Planning Section when these developments are proposed.

Rule 404 (Section 560.404 of the Rules promulgated under the authority of Act 288, P.A. of 1967, as amended) indicates that the local health department, due to extenuating local circumstances, may modify the provisions of the on-site sewage disposal system requirements, provided such modifications are made in writing and supported in writing by a local ordinance or rule.

FLOODPLAINS

The Department of Natural Resources is responsible for establishing floodplains and for controlling the location and elevation of dwellings in the floodplain areas. All tile fields and wells located in floodplain areas must be above the 100-year floodplain elevation. Normally, these elevations are established during the preliminary plat review process and are incorporated into the final deed restrictions. Plat approvals can be expedited in floodplain areas by obtaining a 100-year floodplain level from the Floodplain Management Section of the Department of Natural Resources. In all cases, the suitability of waterfront sites shall include a consideration of the 100-year floodplain or freeboard level as determined by DNR.

WATER TABLE

The seasonal high groundwater table elevation, which is defined as "the elevation of the upper surface of the zone of saturation as may occur during the normally wet periods of the year", must be determined by the proprietor's engineer or surveyor and verified by the local health department wherever mottling or saturated conditions are found within six feet of the ground surface. A minimum of four feet from the bottom of the stone to the seasonal high groundwater elevation is necessary to assure aerobic soil conditions for effective treatment of sewage effluent.

Alternative proposals concerning sewage disposal systems may be offered by the developer's engineer or surveyor to overcome a limiting site condition created by a high water table condition, such as fill, cut and fill, or lowering the groundwater table. Where a proposal to fill an area is made, some minimum site conditions must be satisfied to maximize the likelihood of an effective subsurface absorption system. Subsequently, fill is not to be considered over any subsoil condition except permeable sandy soils where a minimum of two feet of natural aerated soil exists between the seasonal high water table and the original ground surface throughout the area to be filled. Development of the land by filling for on-site sewage disposal systems cannot be considered if extensive areas of the project must be filled, if an unprotected potable water aquifer exists, or contamination of nearby surface waters is a possibility. If these conditions can be satisfied, filling with a good, uniform medium to coarse sand after removal of the topsoil, and allowing settling through a freeze/thaw cycle can be permitted. Mechanical compaction as specified and controlled by an engineer to minimize the time required for natural settling to occur may be considered. All fill for both initial and replacement systems must be completed prior to recording of the plat.

Where a proposal to lower the water table is offered by the engineer, experience has shown that these attempts must be limited to drains installed in areas exhibiting coarse sands and where the potable water aquifer is protected from surface sources of contamination. Minimum isolation distances of 100 feet from the drain to the subsurface absorption field are necessary to prevent contamination of the receiving surface water by sewage effluent that reaches the drain. For this reason, underdrains cannot be allowed. The drain design is to be approved by the county Drain Commissioner and an agreement for perpetual maintenance of the drain accepted by a responsible government entity. It must also be shown by appropriate studies that the potential for effluent from existing or future development entering the drain is extremely low. Finally, prior to approval of the preliminary plat, the drain is to be installed and water table elevations checked the following spring. The plat could then be approved if the water table is a minimum of six feet below the finish grade of the proposed plat during the normally wettest season in the area proposed to be used for the sewage disposal system.

Before any proposed site modification, the local health department must discuss the proposal in detail with a representative of the Land Subdivision and Planning Section to reach agreement on the proposal's applicability, timing, and criteria to be satisfied.

WATER SUPPLY EVALUATION

The consulting engineer or surveyor have the responsibility for determining the suitability of a proposed water supply for the subdivision, and must document the adequacy of the proposed supply in terms of protection, quality, and quantity. The surveyor, consulting engineer, or groundwater hydrogeologist must provide a statement concerning the adequacy of the proposed water supply. A well production of ten (10) gallons per minute based on a four-hour pump test is necessary to assure an adequate quantity of water. However, local conditions may warrant consideration of an engineering proposal to assure the provision of sufficient water to satisfy residential needs and a deviation may be granted. If a proposed water supply shows insufficient quantity, is aesthetically undesirable, may cause corrosion, or be unpalatable, consultation with representatives of the Land Subdivision and Planning Section is required prior to granting of any preliminary plat approvals.

Should test wells be proposed to demonstrate the suitability of the aquifer for individual water supply, minimum engineering criteria warrant that the following information be obtained to facilitate aquifer evaluation:

1. A minimum well diameter of four (4) inches is required where quantity or drawdown characteristics are necessary.

2. An accurate log describing the information required under Part 127, Section 12707, Act 368 of 1978 (public health code) must be obtained. The log is to identify soils noted at every change in formation, with a representative soil sample taken from each formation. The samples must be utilized in evaluating the protection present for the water-bearing formation(s), and retained until the health department review is completed.

3. After a study of existing hydrogeological data, the well must be drilled as deep as necessary to obtain the essential information on the water-bearing aquifer. Normally, the well should be drilled to a minimum depth of 100 feet or through an impermeable layer of at least 10 feet in thickness. The screen must be initially set at the deepest water-bearing formation. If this information is unacceptable for some reason, the engineer may propose to test either a shallower formation or to drill the well deeper, whichever is more appropriate. Conditions necessary to provide an acceptable, protected water supply shall be clearly indicated in the plat restrictions.

4. The well is to be pumped for a minimum of four (4) hours or until a stabilized pumping rate has been achieved and until the well is properly developed to produce sand-free water at the pumping rate of the permanent pump. The pump test must provide data concerning the static level, pumping rate, pumping interval, drawdown and recovery.

5. Samples to conduct bacteriological tests and to conduct partial chemical analysis of the water for chlorides, total hardness, specific conductance, nitrates, and iron must be obtained and the test results submitted to the health department for review. Local conditions may warrant testing for additional items.

In some areas, complex studies of groundwater characteristics are necessary to make a determination concerning utilization of individual wells and may be required. When such studies are indicated, the local health department must discuss the matter with a representative of the Land Subdivision and Planning Section to reach agreement on how it will be accomplished.

ENVIRONMENTAL IMPACT

Under Executive Order 1974-4, projects that have a potentially significant impact on human life or the environment are to undergo the environmental review process. Projects involving "significant" changes in land use (i.e., where a new or expanded land use may significantly affect the groundwater budget of the area; any subdivision proposed with an atypical method of water supply or sewage disposal; when the proposed development proposes significant alteration of soil conditions from the natural state, etc.) are to be brought to the attention of the Land Subdivision and Planning Section before preliminary plat approval is granted.

Subdivisions abutting state trunkline highways have three requirements to guide their plans. These are right-of-way width, adequate drainage in relation to the highway drainage system and trunkline approaches in relation to traffic safety and future use.

Preliminary plats within 500 feet of State Trunkline Right of Way should be submitted to the Department of Transportation for review of potential drainage impact.

The plan on file determines desirable right-of-way width. Proper dedication is essential for plat approval. Easements are not acceptable.

To properly dedicate this right-of-way, the perimeter of the plat should be extended to the property line or to the centerline of the trunkline if they coincide, and proper allowance made. If the acquired right-of-way is held in fee, the perimeter should extend to this boundary line and sufficient additional allowance made. Exceptions should be properly referred to the Route Location Section.

In all new plats bordering on state trunkline highways, lots should front access and collector streets whenever possible, and these collector streets should funnel traffic onto the highways. Provision of an internal street system to permit lots to back on the trunkline will facilitate this requirement. For an example of lots backing on a state trunkline, see Figure 1, Page B-22 of the Rules and Regulations section.

Whenever there is a street approach entering the trunkline, traffic safety is of major importance. Adequate spacing of subdivision street approaches, building setback restrictions, adequate entering sight distance, and clear vision areas all lend themselves to safer highway use. It is highly desirable that clear vision distance from the approach road in both directions along the trunkline should provide for eight seconds of travel time at the legal speed of the trunkline where feasible.

District Engineers should be consulted for drainage requirements. The sheet entitled "General Design Requirements for Approaches and Drainage Structures at Platted Roads and Street which Connect the State and Federal Highways" is a guide for connecting streets and roads (See Exhibit A). Requirements for alleys and driveways can be determined by contacting the Department's District Engineer.

Assistance and availability of manuals, plans and policies.
To expedite the approval or street approaches whenever a plat is submitted for which a permit has been issued, the permit number should be included with the plat. Also, the permit should include the plat name and a reference to a known location, as well as the stationing on the abutting roadway.

The documents and material identified as the "Plan on File", "Standard Specifications for Road and Bridge Construction", "Standard Plans", "Standard Guide" and the "Drainage Policy and Guide" shall be available for reference at the Michigan Department of Transportations' Lansing office and District offices. The District Engineer is available to provide assistance to the developer in meeting the Department's requirements. The County Road Commission offices can also furnish guidance. (See Exhibit B).

GENERAL DESIGN REQUIREMENTS FOR APPROACHES AND DRAINAGE STRUCTURES AT PLATTED ROADS AND STREETS WHICH CONNECT TO STATE AND FEDERAL HIGHWAYS

(See accompanying notes.)

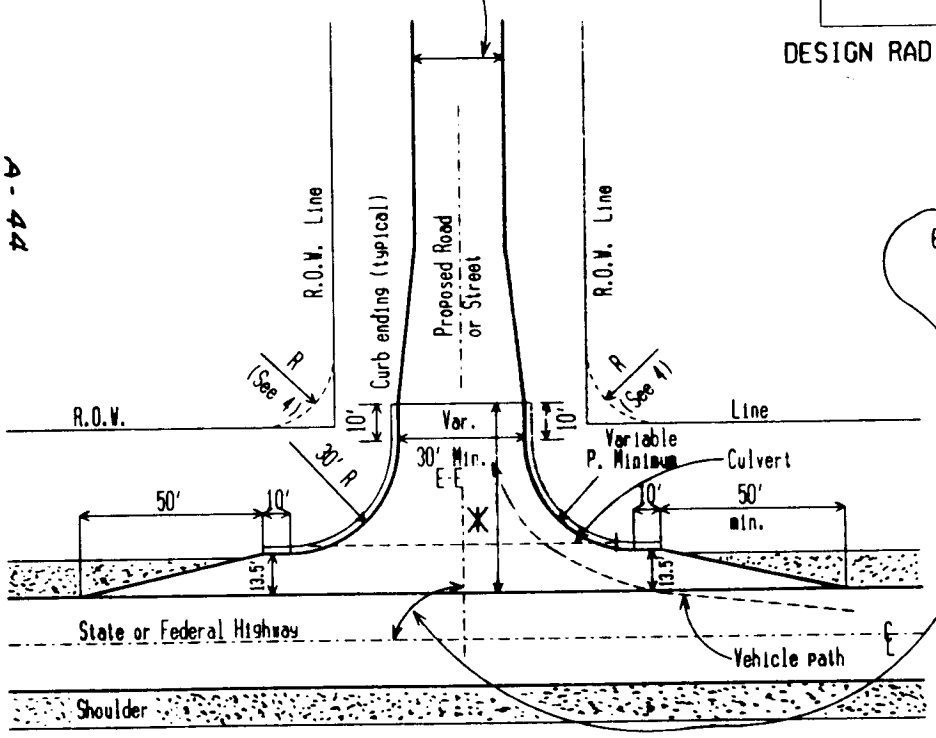
Angle of Turn	P
(Degrees)	(Feet)
60 — 79 incl.	40
80 — 99 incl.	30
100 — 120 incl.	30

DESIGN RADII FOR PASSENGER CAR

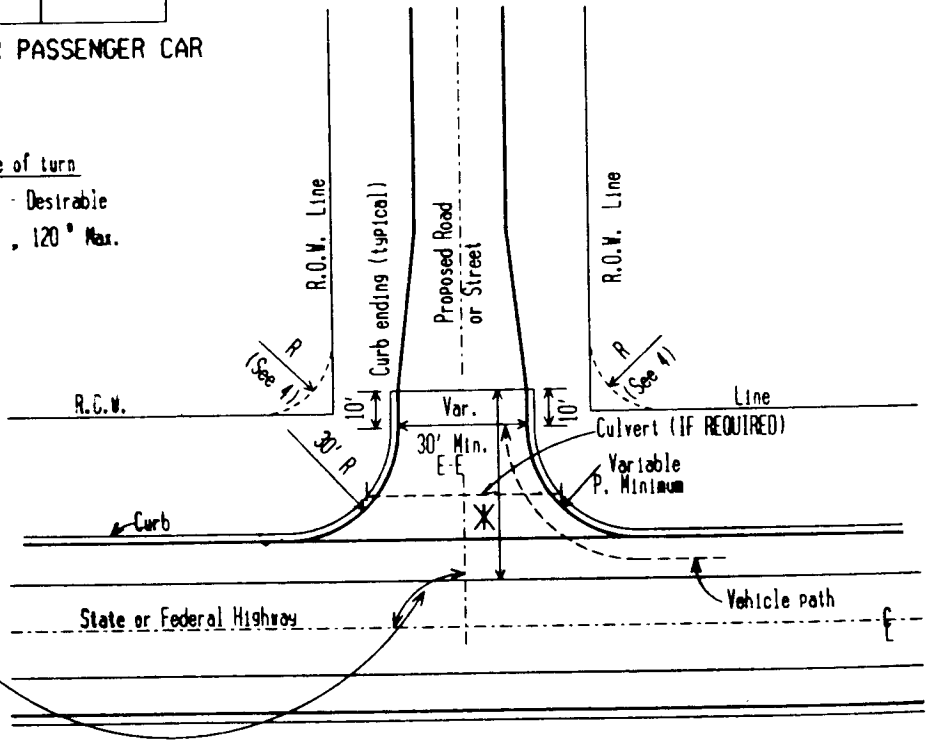
For width of road or street, refer to requirements of governmental agency in whose jurisdiction the subdivision is located.

* Pave approach road to or beyond the curb ending.

Angle of turn
Variable - Desirable
60° Min. , 120° Max.



Treatment for Connection to a Highway Without Curb



Treatment for Connection to a Highway With Curb

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EXHIBIT A

Oct. 1978

NOTES TO ACCOMPANY EXHIBIT A

1. All work shall be done in accordance with current Michigan Department of Transportation Standards & Specifications.

2. The surface shall be equal to or better than either of the following:

   a. Two inch bituminous concrete or bitumen aggregate on eight inches of compacted gravel or crushed stone and subbase compatible with that used on the highway.

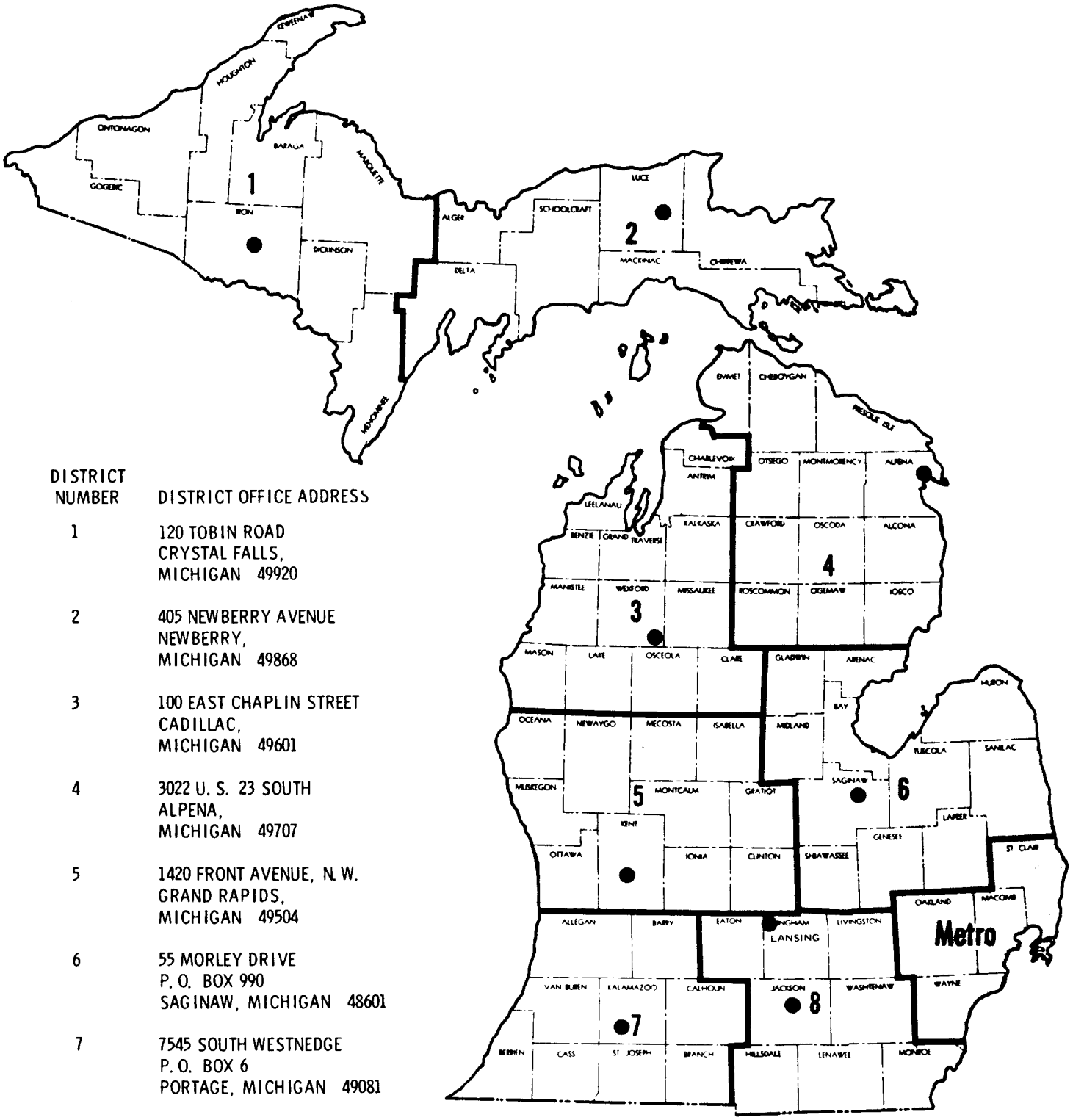
   b. Nine inches of concrete on four inches of compacted gravel or crushed stone and subbase compatible with that used on the highway.

3. Drainage structure of adequate size, length, and design, shall be placed where required in accordance with current Michigan Department of Transportation Standards.

4. Provision of circular arcs with 15-foot radii at intersections of trunkline and approach road right-of-way lines is desirable for future widening. Where there is inadequate state trunkline right-of-way to accomodate these radii and the Department of Transportation anticipates future widening, dedication of this fillet of land to public use by the proprietor without compensation is encouraged to avoid future problems after the land is developed.

5. The highway connections shown are minimum designs for roads and streets with expected Average Daily Traffic of less than 400. For Average Daily Traffic in excess of 400, use the approach road with added lane design shown on Michigan Department of Transportations' Standard Guide VII-650 "Flares and Intersection Radii". For turning-lane requirements and commercial plats, refer to Standard Guide VII-650 or the district traffic and safety engineer.

MICHIGAN DEPARTMENT OF TRANSPORTATION
COUNTIES AND DISTRICT OFFICES

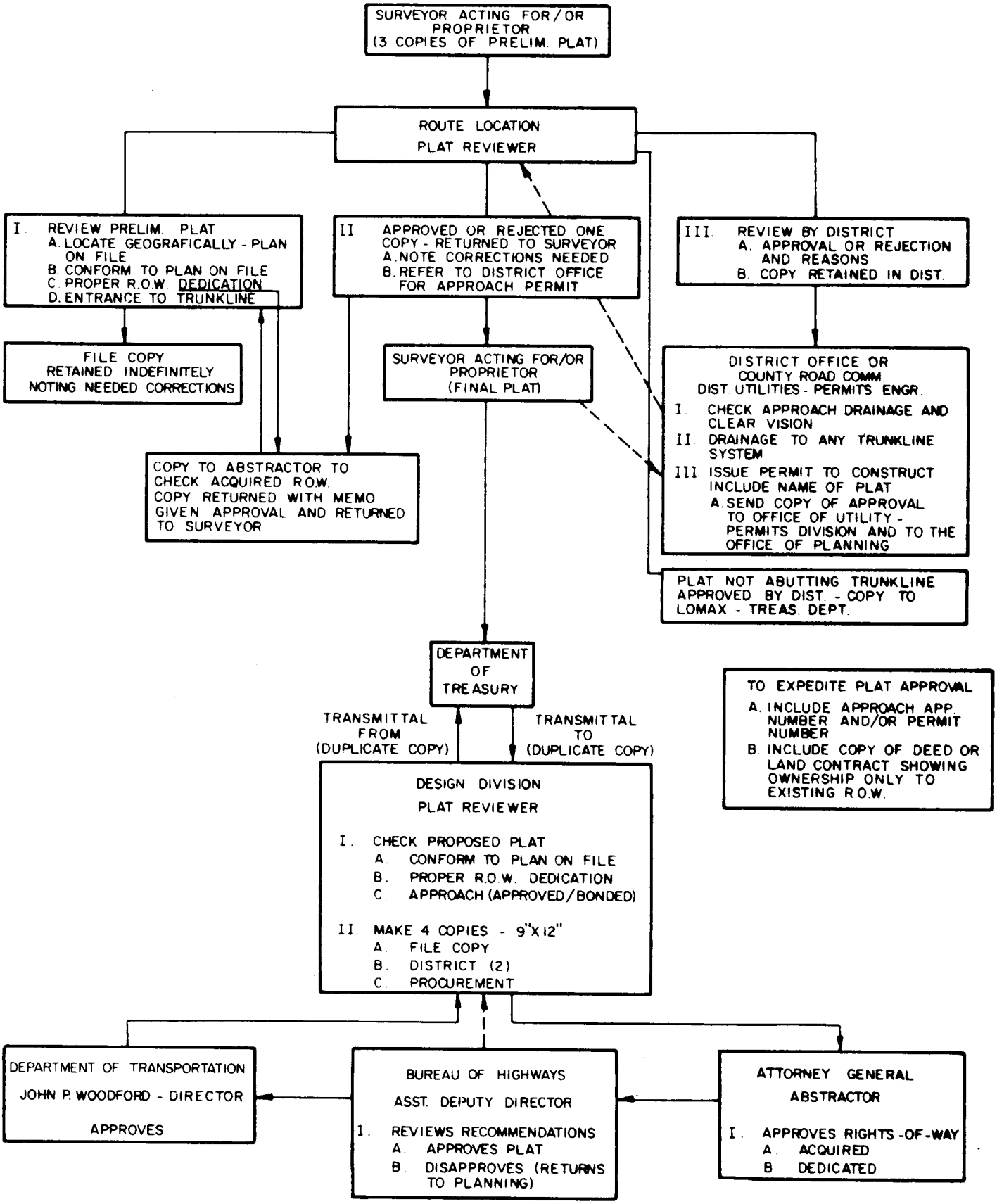


DISTRICT NUMBER	DISTRICT OFFICE ADDRESS
1	120 TOBIN ROAD CRYSTAL FALLS, MICHIGAN 49920
2	405 NEWBERRY AVENUE NEWBERRY, MICHIGAN 49868
3	100 EAST CHAPLIN STREET CADILLAC, MICHIGAN 49601
4	3022 U. S. 23 SOUTH ALPENA, MICHIGAN 49707
5	1420 FRONT AVENUE, N. W. GRAND RAPIDS, MICHIGAN 49504
6	55 MORLEY DRIVE P. O. BOX 990 SAGINAW, MICHIGAN 48601
7	7545 SOUTH WESTNEDGE P. O. BOX 6 PORTAGE, MICHIGAN 49081
8	TWO NORTH PLAZA JACKSON, MICHIGAN 49202
METRO	18101 NINE MILE ROAD SOUTHFIELD, MICHIGAN 48075

Road Commissions of shaded counties issue approach and driveway permits.

PLAT APPROVAL FLOW CHART

Michigan Department of Transportation



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